Date: April 22, 1998

Subject: Meeting with Representatives from Aircraft Engine Test Firing Facilities.

From: Brian Strong, Midwest Research Institute (MRI)
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To: George Smith
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I. Purpose

The U. S. Environmental Protection Agency (EPA) recently began development of National Emission Standards for Hazardous Air Pollutants (NESHAP) for the rocket engine test firing and engine test facilities source categories. A meeting was held on April 22, 1998 by the EPA with representatives from aircraft engine test firing facilities. The purpose of the meeting was to introduce the stakeholders and EPA representatives, discuss the NESHAP process, present the schedule for NESHAP development, and address members' comments and concerns.

II. Attendees

U. S. Environmental Protection Agency (EPA)

Fred Porter
Sims Roy
George Smith

Industry Representatives

Barbara Barrin, Watson & Barrin
Elsie Buttcane, Edwards Air Force Base
Fred Chamberlain, U. S. Navy
Reginald Ching, U. S. Air Force Research Lab
Gary Chung, Pratt & Whitney
Tom Clark, Arnold Air Force Base, Tennessee
T. G. Dale, Delta Airlines
Kevin Doyle, Pratt & Whitney
Everett Douglas, Aircraft Environmental Support Office
Thelma Douglas, American Airlines
Mike Dunn, Naval Surface Warfare Center, Indian Head
Phil Fowlie, United Airlines

Dale Francke, Pratt & Whitney
Paul Gorish, Naval Air Weapons Station, China Lake
Tony Gutterman, Space & Missile Systems Center, Los Angeles Air Force Base
Peter J. Hart, Allison Engineering Company
W. J. Henderson, Delta Airlines
Patty Higginbotham, Air Transport Association
Gene Jeunelot, U.S. Air Force
Major Larry Kim, U.S. Air Force
Bill Koutris, General Electric Corporation Marconi
Alan McDonald, Thiokol
Brenda Mohn, Naval Air Weapons Station, China Lake
Ursula P. Moul, U. S. Air Force
Gail Murphree, National Aeronautics and Space Adminstration
Pravin Patel, Allison Engineering Company
Ira G. Pearl, Delta Airlines
Anita Pederstuen, Alliant Techsystems
Steve Rasmussen, Hill Air Force Base
Brenda Reese, Aircraft Environmental Support Office
Glynn Rountree, Aerospace Industries Association
Jim Scrofani, U. S. Navy
Jim Ryckman, U. S. Air Force
Mary Ruth Senn, U. S. Air Force
John Solberg, U. S. Air Force
James Sumner, General Electric Aircraft Engines
Bryan Taft, Delta Airlines
Joe Thompson, Thiokol
John Tominack, U. S. Navy
Maria Toohey, Pratt & Whitney

Midwest Research Institute (MRI)

Katie Hanks
Doug Lincoln
David Reeves
Brian Strong
Michael Wiggins

III. Discussion

A. Introduction

Handouts on the information to be discussed were provided to the participants at the meeting (see attachments). This meeting summary does not repeat the material in the handouts, but summarizes the discussions of the attendees.

George Smith began the meeting by requesting that each of the industry, MRI, and EPA representatives identify themselves and their affiliation. Mr. Smith mentioned that the final NESHAP standard is scheduled to be completed by November 15, 2000. Mr. Smith stated that the schedule is tight and it will be challenging to meet the November 2000 promulgation date.

B. Discussion of NESHAP process

Brian Strong began a presentation with an overview of the NESHAP process. Mr. Strong also discussed sources of information, the schedule, and tentative topics for teleconferences and meetings.

C. Discussion of Source Category

Mr. Strong presented information on the possible scope of the source category. Mr. Strong asked the industry for input on the type of testing done for aircraft engines. John Solberg stated that a majority of the test cells in the Air Force would not be considered major sources. Mr. Solberg stated that the test cells are operated for only very short time periods. Mr. Strong stated that a lot of Air Force test cells are operated at sites that have other operations that cause the site to be classified as a major source. Since the overall site would be classified as major, the facility would have to comply with the aircraft engine test firing NESHAP.

Mr. Solberg asked about facilities that do both painting and aircraft engine tests. Mr. Solberg stated that the paint emissions would cause the facility to be classified as major. Mr. Strong stated that if the facility was major then it would be regulated by the aircraft engine test firing NESHAP. Jim Ryckman stated the NESHAP would apply to collocated major sources but would not apply to minor sources which are collocated. Brenda Mohn mentioned that the wood furniture NESHAP does not affect collocated sources. Mr. Smith asked Ms. Mohn to provide a position paper to justify de minimis for this project. Industry representatives asked about the definition of potential to emit. Mr. Smith stated that a definition for potential to emit will be posted on the engine testing NESHAP web site.

Ms. Mohn stated that China Lake is classified as a level "O" facility and they are not allowed to remove the aircraft engine or to paint the aircraft. Ms. Mohn stated that she thought that the aircraft engine test firing NESHAP will be for performance testing of jets. Ms. Mohn mentioned that China Lake performs survivability tests. She stated that EPA needs to define what type of aircraft engine testing the NESHAP will cover.

Jim Sumner asked about what the basis is for the decision on whether a source is major. He asked if the EPA can make a conclusion on a source category being major when there is no data to support the decision. Mr. Sumner stated that he thinks that the aircraft engine test firing source category is major, but he would like to emphasize the need for getting reliable emissions data. Mr. Pearl stated that he was alarmed at the lack of emissions data. Mr. Pearl stated that a method needs to be determined for validating data. Mr. Sumner suggested that EPA develop a protocol for examining data. Mr. Sumner asked how EPA can judge the data that has already been produced. He remarked that some of the tests were performed as long ago as the 1970s.

Everett Douglas asked if EPA has a protocol for testing emissions from aircraft engine test cells. Mr. Strong remarked that EPA does not have a specific protocol for aircraft engine test cells, but they do have a general protocol for testing procedures.

Mr. Sumner commented that it does not seem appropriate to include storage tanks. He stated that EPA should focus only on engine testing. Kevin Doyle agreed with Mr. Sumner and stated that storage tanks were already regulated by other sources. Mr. Pearl stated that the NSPS regulated storage tanks. Mr. Smith stated that the NSPS only regulated criteria pollutants and not HAP's. Mr. Sumner stated that one facility should be regulated by only one NESHAP.

Mr. Smith asked the industry if they have any concerns besides aircraft engine test cells. Mr. Sumner stated that GE produces non-aerospace engines. Mr. Douglas stated that the Navy would test ship engines in an aircraft engine test cell. He questioned if the NESHAP would regulate this type of operation. Mr. Smith stated that it would be regulated because the NESHAP is for engine testing.

Mr. Smith asked how the industry representatives suggest that the data gathering be done. Mr. Sumner stated that he would be happy to gather and send data, but he thinks a protocol needs to be developed in order to determine if data are valid. He emphasized developing a tool to validate data by looking at the sampling method and age of the data. Mr. Sumner stated that he would like to streamline the data for the EPA in order to make sure the data are accurate. He commented that the entire document would still be sent to the EPA.

Thelma Douglas asked about the possibility of delisting the aircraft engine test cell source category. Jim Ryckman asked what EPA would do if EPA performed data collection and no MACT floor was determined. Would the EPA delist or go beyond the floor? Mr. Smith stated

that EPA could go beyond the floor, but EPA would need a very good reason. Mr. Smith stated that delisting is very hard to accomplish; he remarked that the industry should contact him at another time if they wished to pursue delisting aircraft engine test cells.

Mr. Smith stated that, from the information EPA has currently gathered, it appears that the regulation will be some type of work practice. Mr. Rasmussen remarked that the State office of Utah has work practices for criteria pollutants, but none for HAP's.

Mr. Doyle suggested posting gathered data over the Internet in order for stakeholders to see what data EPA has collected. Mr. Sumner disagreed because he believed that if data was posted on the web it would be presumed that the data had been validated. Mr. Sumner stated that he hopes the EPA and industry can share data back and forth. Kathy Ellis asked how confidential business information (CBI) would be handled. Mr. Smith stated that EPA has CBI policies that would keep designated information confidential.

D. Discussion of Site Visits

Mr. Strong presented information on possible locations for site visits. Mr. Strong asked the industry about possible sites located in California besides Edwards Air Force Base and China Lake. Mr. Douglas stated that the San Diego Navy Base would be a good location to visit. Mr. Sumner stated that GE has a small commercial site located at LAX in California.

Mr. Sumner asked if it was appropriate for EPA to start determining site visits when a method for evaluating the data has not been determined. Mr. Strong stated that EPA was not selecting sites at this point, but just making a list of potential locations.

Mr. Strong asked about the sites that EPA could visit in the Ohio area. He mentioned Wright-Patterson Air Force Base, GE Aircraft Engines, and the NASA Lewis Research Center. Industry representatives stated that Wright-Patterson Air Force Base was not a good location to see jet engine test cells. Ms. Murphree stated that she would check to see what operations are located at the NASA Lewis Research Center.

Mr. Sumner stated that EPA should visit a repair and rework facility. He stated that most of the locations that were listed in the presentation are large companies and EPA should include visits to small private and military locations. He also stated that EPA should visit a commercial airline location.

Mr. Pearl asked what the primary constraint is for EPA in doing site visits. Mr. Smith stated that travel funds limit EPA to three to four site visits. Mr. Pearl stated that ATA would be interested in expanding EPA site visits by possibly providing funding for airline tickets. Mr. Smith commented that EPA would examine the funding issue.

E. Discussion of Emission Testing

Mr. Strong opened the floor for discussion of emission testing. Mr. Sumner stated that the emissions from aircraft engine test cells need to be determined. Mr. Sumner stated that the emissions from test cells might not be large enough to regulate. Kevin Doyle asked what the HAP emissions from these sources are and what testing has been done. Doug Lincoln discussed that the EPA had reviewed data for specific source categories and had determined that the source category "Engine Test Facilities" emits HAP's. He stated that the data was from a background/determination study for MACT conducted by the EPA and that the document does

provide references for the listed HAP's. He also stated that current jet engine emission data that EPA has on hand is not as complete as it could be and that more data are needed before any determinations can be made. He stated that this NESHAP is still in the beginning stages and the major decisions that will be made based on HAP emission levels will not be made for some time. Mr. Lincoln stated that the Air Force currently is working on a project to develop emission factors for their fleet of engines.

Major Larry Kim stated that the Air Force has performed HAP emission tests on a large sample of aircraft engines. He stated that it was unfortunate that the data was not available before the source category was created. The aircraft engines involved in the test used JP-8 and JP-5 fuel. He stated that Jet-A fuel is very similar to JP-8 fuel. A wide range of aircraft engines were tested in order to get a large sample. The Air Force tested over twenty engines, including ones for the C-130, helicopter, cargo plane, fighters, and bombers. Mr. Smith asked how much HAP is emitted from the jet engines in terms of tons per year. Mr. Kim stated that he could not give a number, but he stated that the HAP emissions were in terms of pounds per year and not tons per year. Mr. Kim stated that the emission tests only checked for HAP's that would reasonably appear in a test cell. Mr. Sumner stated that a detailed evaluation of the data must be done. Mr. Sumner questioned if there is a way to extrapolate data on JP-8 fuel to Jet-A fuel. Mr. Kim stated that it may be possible to extrapolate this data to other fuels and engines and that one of the goals of the project is to examine that possibility. Mr. Kim stated that the final report of the Air Force emission tests is due at the end of July, and there is the possibility that another engine, the F-22 engine, test will be added to the project because all of the funding has not been used. If the additional engine is tested, that might delay the report deadline. Mr. Pearl asked if the preliminary

information could be provided earlier. Mr. Kim stated that the release of the information would have to be authorized by public affairs.

Mr. Pearl mentioned that EPA needs to develop an EPA reference method for testing. Mr. Sumner asked if EPA is interested in development of a protocol. He stated that the protocol would define how existing data should be examined. Mr. Smith asked the industry to send a draft for a protocol and said EPA would examine it. Mr. Sumner stated that the trade groups should get together in the next two to three weeks in order to discuss the protocol. Mr. Sumner suggested having a conference call with EPA in order to discuss the development of a protocol. Mr. Kim stated that the protocol used by the Air Force had been looked at thoroughly and the Air Force is very comfortable with the results from their emission tests.

Mr. Smith asked what the industry thought of emission testing. Mr. Sumner asked if the EPA had an emission testing budget. Mr. Smith stated that EPA had set aside a certain amount of funds for emission testing. Mr. Sumner commented that EPA budget was probably not large enough, because emission testing is extremely expensive. Mr. Sumner asked whether the EPA plans to set up an emission test program or gather existing data. Mr. Strong stated that at the present time EPA plans to gather existing data.

F. Discussion of Information Collection Request (ICR)

Dave Reeves presented information on an information collection request (ICR). He opened the floor for discussion about the generic ICR. Mr. Pearl asked whether EPA would send out an ICR if EPA gathered enough information without an ICR. Mr. Smith stated that an ICR is not required if EPA receives enough information. Mr. Sumner asked if EPA had looked at the

ICR for the past NOx study. Mr. Strong stated that EPA had looked at the ICR, but it did not have much detail and no information on HAP's. Mr. Ryckman asked if the ICR will be available electronically. Mr. Reeves stated that an electronic ICR is an option.

Mr. Ryckman asked about the possibility of a voluntary questionnaire. Fred Porter stated that EPA could not use information submitted by industry if the EPA indirectly solicited or somehow coerced that information. The EPA can only use information submitted voluntarily by industry or the general public without EPA coercion. Mr. Porter stated that any information that EPA receives through coercion could be considered to be an ICR and would therefore need to have Office of Management and Budget (OMB) approval. Mr. Porter stated that he did not want to discourage voluntary information submission, but it must be without coercion. Mr. Sumner asked if another meeting could be held in order to discuss the ICR. Mr. Smith stated that another meeting would be set up in the next few weeks.

G. Conclusion

Mr. Smith stated that a web site has been set up in order to coordinate the development of the rocket engine test firing NESHAP. The web site is "www.epa.gov/ttn/uatw/engtest/rock_eng.html".